

ABSTRACT OF THE DISCLOSURE

A system, method, and apparatus is disclosed for creating a three-dimensional visual representation of an object having multiple resolutions by retrieving a vertex list for the object, determining a collapse order for the vertices identified in the vertex list, reordering the vertices identified in the vertex list responsive to the determined collapse order, and creating a vertex collapse list responsive to the collapse order, where the vertex collapse list specifies, for a target vertex, a neighbor vertex to collapse to. The vertex list may comprise 3D coordinates of vertices without referring to other vertex attributes or, in alternate embodiments, the vertex list may refer to other vertex attributes such as colors or normals. A runtime manager is disclosed which dynamically manages the polygon counts for objects and frames based upon the location, velocity, and area of the object. Polygon counts are also adjusted based upon a target frame rate and a target polygon count. A system is also disclosed for continuous transfer of data across a remote connection in which different levels of resolution are transmitted individually.